

## **SECTION 00848**

# **DESLICKING GRIT**

## **Type I and II**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Supply and deliver abrasive material Type I and II for use as deslicking grit.

#### **1.2 REFERENCES**

- A. AASHTO T 11: Materials Finer than 75  $\Phi$ m (no. 200) Sieve in Mineral Aggregates by Washing.
- B. AASHTO T 27: Sieve Analysis of Fine and Coarse Aggregates.
- C. AASHTO T 89: Determining the Liquid Limit of Soils.
- D. AASHTO T 90: Determining the Plastic Limit and Plasticity Index of Soils.
- E. AASHTO T 176: Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalency Test
- F. AASHTO T 255: Total Moisture Content of Aggregate by Drying
- G. ASTM C 29: Dry Loose Unit Weight, PCF
- H. ASTM C 70: Standard Test Method for Surface Moisture in Fine Aggregates

#### **1.3 SUBMITTALS**

- A. Ten days before delivery begins, submit a written report on the following:
  - 1. Aggregate suitability.
  - 2. Name of supplier and source.
  - 3. Gradation including single values for each sieve size based on the dry weight of the aggregate.
  - 4. Dry Loose Unit Weight of the product and yield of product in cubic yards per loose dry ton.
- B. For each shipment, supply bill of lading showing:
  - 1. Type and grade of material

2. Destination
3. Consignee's name
4. Date of Shipment
5. Truck identification
6. Gross weight of material in pounds
7. Moisture content at time of loading, reported to the nearest one percent (1.0%)
8. Bill of lading number
9. Manufacturer

#### 1.4 QUALITY ASSURANCE

- A. Remove defective product and replace with acceptable product at no additional cost to the Department.

#### 1.5 ACCEPTANCE

- A. Vendor determines and reports moisture content of materials provided under this contract.
- B. Department reserves the right to test randomly at vendor's plant or at delivery locations.
- C. Vendor notifies Department of UDOT production dates at least one working day in advance so Department may arrange plant-site testing if desired.
- D. Price Adjustment

##### 1. Moisture Content

Reduce pay quantity by correcting for moisture content using the following formula:

$$\text{Pay Weight} = \frac{W * (100 - M) * 0.01}{2000}$$

Pay Weight = Tons of dry material delivered

W = Weight in pounds of material delivered determined from weight tickets.

M = Percent moisture expressed to the nearest 1.0%

2000 = pounds per ton

0.01 = factor to convert percent to decimal value

##### **EXAMPLE:**

Weight from weight tickets = 34,560 pounds = W

Moisture content certified by vendor = 7 % = M

$$\text{Pay Weight} = ((34560) * (100 - 7) * .01) / 2000 = \underline{16.07 \text{ Tons}}$$

## 2. Deleterious Substances

- a. Pay factors for deleterious substances when tested are indicated in Table 1.
- b. Deleterious substances are defined as items not normally found in a processed mineral product such as weeds, sticks, paper, trash, metal, plastic, leaves and organic debris.
- c. This applies only if Department does not order correction or removal of any or all of the material represented by the tests.

**Table 1**

<b>Deleterious Substances</b>		
<b>Material</b>	<b>Max. Percent (by weight)</b>	<b>Pay Factor</b>
Other Substances	Greater than 2.0	0.15

3. Price Adjustments - Gradation:
  - a. Based upon number of samples per lot and the minimum pay factor.
  - b. Pay factors for aggregate gradation when tested in accordance with AASHTO T 27 are indicated in Table 2.
  - c. Acceptance will be on a lot-by-lot basis where a lot consists of a single day's production.
  - d. Conduct one random moisture, gradation and dry loose unit weight test within each lot or subplot.

<b>Table 2</b> <b>Pay Factors for Aggregate Gradation</b> <b>Mean of The Deviations of Sieve Gradation Results From The Combined Aggregate</b> <b>Target - Expressed in Percentage Points</b>						
<b>SIEVE SIZES</b>	<b>Pay Factor</b>	<b>1 TEST Max-min</b>	<b>2 TESTS Max-Min</b>	<b>3 TESTS Max-Min</b>	<b>4 TESTS Max-Min</b>	<b>5 TESTS or More Max - Min</b>
<b>½ inch</b>	<b>1.00</b>	0 - 15	0.0 - 12.1	0.0 - 10.8	0.0 - 10.0	0.0 - 9.5
	<b>0.95</b>	16 - 17	12.2 - 13.9	10.9 - 12.4	10.1 - 11.5	9.6 - 11.0
	<b>0.90</b>	18 - 19	14.0 - 15.1	12.5 - 13.5	11.6 - 12.5	11.1 - 11.9
	<b>0.80</b>	20 - 21	15.2 - 17.2	13.6 - 15.3	12.6 - 14.2	12.0 - 13.5
	<b>0.70</b>	22 - 23	17.3 - 18.8	15.4 - 16.7	14.3 - 15.5	13.6 - 14.7
<b>3/8 inch</b>	<b>1.00</b>	0 - 15	0.0 - 11.5	0.0 - 9.8	0.0 - 8.8	0.0 - 8.0
	<b>0.95</b>	16 - 17	11.6 - 13.3	9.9 - 11.3	8.9 - 10.1	8.1 - 9.2
	<b>0.90</b>	18 - 19	13.3 - 14.4	11.4 - 12.3	10.2 - 11.0	9.3 - 10.0
	<b>0.80</b>	20 - 21	14.5 - 16.3	12.4 - 13.9	11.1 - 12.5	10.1 - 11.4
	<b>0.70</b>	22 - 23	16.4 - 17.9	14.0 - 15.2	12.6 - 13.6	11.5 - 12.4
<b>No. 4</b>	<b>1.00</b>	0 - 14	0.0 - 10.5	0.0 - 8.8	0.0 - 7.8	0.0 - 7.0
	<b>0.95</b>	15 - 17	10.6 - 12.1	8.9 - 10.1	7.9 - 9.0	7.1 - 8.0
	<b>0.90</b>	18	12.2 - 13.1	10.2 - 11.0	9.1 - 9.8	8.1 - 8.7
	<b>0.80</b>	19 - 20	13.2 - 14.9	11.1 - 12.5	9.9 - 11.1	8.8 - 10.0
	<b>0.70</b>	21 - 22	15.0 - 16.3	12.6 - 13.6	11.2 - 12.1	10.1 - 10.8
<b>No. 8</b>	<b>1.00</b>	0 - 11	0.0 - 8.2	0.0 - 6.9	0.0 - 6.2	0.0 - 5.6
	<b>0.95</b>	12 - 13	8.3 - 9.4	7.0 - 7.9	6.3 - 7.1	5.7 - 6.4
	<b>0.90</b>	14	9.5 - 10.3	8.0 - 8.6	7.2 - 7.8	6.5 - 7.0
	<b>0.80</b>	15 - 16	10.4 - 11.6	8.7 - 9.8	7.9 - 8.8	7.1 - 8.0
	<b>0.70</b>	17	11.7 - 12.7	9.9 - 10.7	11.7 - 12.7	8.1 - 8.7
<b>No. 200</b>	<b>1.00</b>	0 - 4.5	0.0 - 3.4	0.0 - 2.9	0.0 - 2.5	0.0 - 2.3
	<b>0.95</b>	4.6 - 5.2	3.5 - 3.9	3.0 - 3.3	2.6 - 2.9	2.4 - 2.6
	<b>0.90</b>	5.3 - 5.6	4.0 - 4.3	3.4 - 3.6	3.0 - 3.1	2.7 - 2.9
	<b>0.80</b>	5.7 - 6.4	4.4 - 4.8	3.7 - 4.1	3.2 - 3.6	3.0 - 3.3
	<b>0.70</b>	6.5 - 7.0	4.9 - 5.3	4.2 - 4.5	3.7 - 3.9	3.5 - 3.6

5. **Unit Weight**
  - a. Department may direct removal of material not conforming to dry loose unit weight requirements listed in table 3.
  - b. If Department does not order removal adjust unit price by 1 percent for every full pound over or under the specified minimum or maximum unit weight
6. **Plasticity** – Remove material found to be plastic

## PART 2 PRODUCTS

### 2.1 AGGREGATES

A. Deslicking grit meets properties listed in Table 3, 4, and 5.

**Table 3**

<b>Deslicking Grit Properties</b>		
Dry Loose Unit Weight	Not less than 40 lb/ft <sup>3</sup>	ASTM C 29
Dry Loose Unit Weight	Not greater than 100 lb/ft <sup>3</sup>	ASTM C 29
Material Passing No. 40 Sieve	Non plastic	AASHTO T 90/T 89
Dry Weight Values	Within bands shown in Table 4	
Deleterious Materials	Less than 2% by weight	Visual Inspection
Gradation Limits	Table 3	AASHTO T 11 AASHTO T 27

**Table 4**

<b>Sieve Size</b>	<b>Dry Rodded Unit Weight</b>		
	<b>40-60 lb/ft<sup>3</sup></b>	<b>60-80 lb/ft<sup>3</sup></b>	<b>80-100 lb/ft<sup>3</sup></b>
1/2"	100	100	100
3/8"	85-100	90-100	100
1/4"	-----	-----	50-100
#4	40 -100	40-100	40-100
#8	15-75	15-75	15-80
#200	0-10	1-10	0-15

B. Sand equivalency using UDOT 9-938:

**Table 5**

<b>Grit Type</b>	<b>Sand Equivalency</b>
Type I	80 or greater
Type II	60 or greater

## **2.2 SOURCE QUALITY CONTROL**

- A. Deslicking Grit: Comply with properties listed in Tables 3, 4, and 5.
  - 1. Department selects samples randomly.
  - 2. Department determines the suitability of the aggregate source based on values listed in Tables 3, 4, and 5.
- B. If tests indicate materials do not meet specified requirements, change material source and retest at no additional cost to Department.

## **PART 3 EXECUTION**

### **3.1 DELIVERY**

- A. Delivery: Deliver to locations listed on the bid schedule between 8:00 AM and 4:00 PM, Monday through Thursday. Notify station supervisor twenty-four hours prior to delivery. Unload material where directed by Department.
  - 1. Delivery Method One: Deliver using end dump trucks only. No Trailers.
  - 2. Delivery Method Two: Deliver using end dump trucks, end dump trucks with pups, or end dump trailers.
  - 3. Delivery Method Three: Deliver using end dumps, end dumps with pups, end dump trailers, side dumps, or belly dumps.
  - 4. Delivery Method Four: Load state trucks F.O.B. at supplier's production facility, stockpile, railhead, or other designated location. Supplier specifies point of delivery in writing if other than normal place of business.

END OF SECTION

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